

Listing of Claims:

1. (Currently Amended) A transmission state indicating method for a predetermined transmission system, by SONET (Synchronous Optical Network)/SDH (Synchronous Digital Hierarchy), in which high capacity data is divided into a plurality of low capacity virtual containers and transmitted via a plurality of channels which configure a communication network by the SONET/SDH based on clocks at the respective channels, the method comprising:

~~acquiring a multiplexed frame in which mapping, accompanying~~
~~delay absorption processings corresponding to assembling a~~
~~plurality of frames back into a multiplexed frame, wherein the~~
~~plurality of frames are received in accordance with~~ transmission
states at the respective channels, ~~has been carried out and~~
~~wherein the assembling is performed~~ based on a reference clock
with respect to virtual containers at the respective channels
included in [[a]] the plurality of frames including the plurality
of low capacity virtual containers;

successively detecting factors at the respective channels
which are respectively included in the plurality of frames
~~included contained~~ in the multiplexed frame, and which are to be
objects for delay absorption processings corresponding to the
transmission states at the respective channels, as a plurality of

pointer values indicating a variation in phase or transmission
delay during transmission at said plurality of channels which
25 configure the communication network by the SONET/SDH; and

~~successively correcting the plurality of pointer values
based on variations in phases at the respective channels which
are detected from phase differences between the clocks at the
respective channels and the reference clock; and~~

30 indicating the plurality of pointer values successively
~~corrected~~ detected, at the same time, corresponding to the
plurality of channels.

2. (Original) The transmission state indicating method
according to claim 1, further comprising:

storing said plurality of pointer values in association with
information for indicating said plurality of pointer values at
5 the same time in accordance with said plurality of channels; and

reading out the plurality of pointer values stored in
association with the information for indicating the plurality of
pointer values corresponding to the plurality of channels, at the
same time.

3. (Original) The transmission state indicating method
according to claim 1, further comprising:

carrying out processing for indicating said plurality of
pointer values by relative values with respect to a pointer value
of a reference channel to be a reference among said plurality of
5 channels when said plurality of pointer values are indicated at
the same time corresponding to the plurality of channels.

4. (Previously Presented) The transmission state indicating
method according to claim 1, wherein the plurality of pointer
values include, as factors of the respective channels to be
objects for the delay absorption processings, values of AU
5 (Administrative Unit) pointers included in H1 bytes and H2 bytes
which have been defined to show head portions of the virtual
containers in case where the low capacity containers are
contained in a payload, at the 4th row of an SOH (Section
Overhead) frame in which the plurality of frames are frames of an
10 STM (Synchronous transfer mode) and which is added to the payload
of the frame of the STM.

5. (Previously Presented) The transmission state indicating
method according to claim 1, wherein the plurality of pointer
values include, as factors of the respective channels to be
objects for the delay absorption processings, a value of H4 byte
5 which has been defined at the 6th row of a POH (Pass Overhead)
added to head portions of the respective virtual containers in

case where said plurality of frames are frames of an STM (Synchronous transfer mode) and the virtual containers included in the frames of the STM are a VC-3 format or a VC-4 format.

6. (Previously Presented) The transmission state indicating method according to claim 1, wherein the plurality of pointer values include, as factors of the respective channels to be the objects for the delay absorption processings, values of AU (Administrative Unit) pointers included in H1 bytes and H2 bytes which have been defined to show head portions of the virtual containers in case where the low capacity containers are contained in a payload, at the 4th row of an SOH (Section Overhead) frame in which said plurality of frames are frames of an STM (Synchronous transfer mode) and which is added to the payload of the frame of the STM, and a value of H4 byte which has been defined at the 6th row of a POH (Pass Overhead) added to the head portions of the respective virtual containers in case where said plurality of frames are frames of the STM (Synchronous transfer mode) and the virtual containers included in the frames of the STM are a VC-3 format or a VC-4 format.

7. (Currently Amended) The transmission state indicating method according to claim 1, further comprising:

converting the multiplexed frame ~~on which mapping has been~~
~~carried out~~ into a concatenation mapping frame according to ~~the~~
5 rules of concatenation mapping; and

detecting a plurality of index values included in the
concatenation mapping frame converted according to the rules of
the concatenation mapping in place of the multiplexed frame ~~on~~
~~which mapping has been carried out.~~

8. (Currently Amended) A transmission state indicating
apparatus for a predetermined transmission system by SONET
(Synchronous Optical Network)/SDH (Synchronous Digital
Hierarchy), in which high capacity data is divided into a
5 plurality of low capacity virtual containers and transmitted via
a plurality of channels which configure a communication network
by the SONET/SDH based on clocks at the respective channels, the
apparatus comprising:

a frame assembling unit which assembles a plurality of
10 frames back into a multiplexed frame, wherein the plurality of
frames are received in accordance with ~~a multiplexed frame~~
~~acquiring unit which acquires a multiplexed frame in which~~
~~mapping, accompanying delay absorption processings corresponding~~
~~to transmission states at the respective channels, has been~~
15 ~~carried out~~ and wherein the assembling by the frame assembling
unit is performed based on a reference clock with respect to the

virtual containers at the respective channels included in [[a]]
the plurality of frames including said plurality of low capacity
virtual containers;

20 a pointer value detecting unit which successively detects
factors at the respective channels ~~which~~ that are respectively
included in the plurality of channels included in the multiplexed
frame ~~acquired by the multiplexed frame acquiring unit~~ assembled
by the frame assembling unit, and ~~which~~ that are to be objects
25 for delay absorption processings corresponding to the
transmission states at the respective channels, as a plurality of
pointer values indicating a variation in phase or transmission
delay during transmission at the plurality of channels which
configure the communication network by the SONET/SDH, ~~and which~~
30 ~~successively corrects the plurality of pointer values based on~~
~~variations in phases at the respective channels to be detected~~
~~from phase differences between the clocks at the respective~~
~~channels and the reference clock; and~~

 a display unit which indicates the plurality of pointer
35 values successively detected ~~and corrected~~ by the pointer value
detecting unit, at the same time, corresponding to the plurality
of channels.

9. (Currently Amended) The transmission state indicating
apparatus according to claim 8, further comprising:

a storage unit which stores said plurality of pointer values successively detected ~~and corrected~~ by the pointer value
5 detecting unit in association with information for indicating the plurality of pointer values at the same time in accordance with the plurality of channels; and

a control unit which reads said plurality of pointer values stored in association with the information for indicating said
10 plurality of pointer values corresponding to the plurality of channels at the storage unit, at the same time.

10. (Currently Amended) The transmission state indicating apparatus according to claim 8, further comprising:

a control unit which carries out processing for indicating the plurality of pointer values successively detected ~~and~~
5 ~~corrected~~ by the pointer value detecting unit, by relative values with respect to a pointer value of a reference channel to be a reference among the plurality of channels in the case where said plurality of pointer values are indicated at the same time corresponding to the said plurality of channels.

11. (Currently Amended) The transmission state indicating apparatus according to claim 8, wherein the plurality of pointer values include, ~~as factors of the respective channels to be~~
~~objects for the delay absorption processings,~~ values of AU

5 (Administrative Unit) pointers included in H1 bytes and H2 bytes
which have been defined to show head portions of the virtual
containers in case where the low capacity containers are
contained in a payload, at the 4th row of an SOH (Section
Overhead) frame in which the plurality of frames are frames of an
10 STM (Synchronous transfer mode) and are added to payloads of the
frames of the STM.

12. (Currently Amended) The transmission state indicating
apparatus according to claim 8, wherein the plurality of pointer
values include, ~~as factors of the respective channels to be~~
~~objects for the delay absorption processings,~~ a value of H4 byte
5 which has been defined at the 6th row of a POH (Pass Overhead)
added to head portions of the respective virtual containers in
case where the plurality of frames are frames of an STM
(Synchronous transfer mode) and the virtual containers included
in the frames of the STM system are a VC-3 format or a VC-4
10 format.

13. (Currently Amended) The transmission state indicating
apparatus according to claim 8, wherein the plurality of pointer
values include, ~~as factors of the respective channels to be~~
~~objects for the delay absorption processings,~~ values of AU
5 (Administrative Unit) pointers included in H1 bytes and H2 bytes

which have been defined to show head portions of the virtual containers in case where the low capacity containers are contained in a payload, at the 4th row of an SOH (Section Overhead) frame in which said plurality of frames are frames of an STM (Synchronous transfer mode) and are added to the payload of the frame of the STM, and a value of H4 byte which has been defined at the 6th row of a POH (Pass Overhead) added to the head portions of the respective virtual containers when the plurality of frames are frames of the STM (Synchronous transfer mode) and the virtual containers included in the frames of the STM are a VC-3 format or a VC-4 format.

14. (Currently Amended) The transmission state indicating apparatus according to claim 8, further comprising:

a frame converting unit which converts the multiplexed frame ~~acquired~~ assembled by the ~~multiplexed~~ frame ~~acquiring~~ assembling unit into a concatenation mapping frame according to ~~the~~ rules of concatenation mapping; and

an index value detecting unit which detects a plurality of index values included in the concatenation mapping frame converted according to the rules of the concatenation mapping by the frame converting unit.

15. (Currently Amended) A transmission state indicating apparatus for a predetermined transmission system by SONET (synchronous Optical Network)/SDH (synchronous digital Hierarchy), in which high capacity data is divided into a plurality of low capacity virtual containers and transmitted via a plurality of channels which configure a communication network by the SONET/SDH based on clocks at the respective channels, the apparatus comprising:

a plurality of clock reproducing units which reproduce the clocks of the respective channels from reception signals of a plurality of frames including the plurality of low capacity virtual containers;

a plurality of frame receiving units which receive the plurality of frames including the plurality of low capacity virtual containers in which the high capacity data is divided into the plurality of low capacity virtual containers and transmitted via the plurality of channels which configure the communication network by the SONET/SDH, corresponding to the plurality of the respective channels, and detect the virtual containers at the respective channels based on the clocks of the respective channels reproduced by the plurality of clock reproducing units;

a reference clock generating unit which generates a reference clock;

25 a frame assembling unit which assembles the plurality of
frames back into a multiplexed frame in accordance with
transmission states of the respective channels and based on the
reference clock from the reference clock generating unit ~~which~~
~~carries out mapping~~ with respect to the virtual containers at the
30 respective channels included in the plurality of the frames
received corresponding to the plurality of channels by the
plurality of frame receiving units, ~~based on the reference clock~~
~~from the reference clock generating unit, accompanying delay~~
~~absorption processings corresponding to the transmission states~~
35 ~~of the respective channels, so as to be produce a multiplexed~~
~~frame;~~

 a pointer value detecting unit which successively detects
factors at the respective channels ~~which~~ that are respectively
included in the plurality of frames ~~included~~ contained in the
40 multiplexed frame assembled ~~on which mapping has been carried out~~
by the frame assembling unit, and ~~which~~ that are to be objects
for delay absorption processings corresponding to the
transmission states at the respective channels, as a plurality of
pointer values indicating a variation in phase or transmission
45 delay during ~~the~~ transmission at the plurality of channels which
configure the communication network by the SONET/SDH, and which
successively ~~corrects~~ detects the plurality of pointer values
based on variations in phases at the respective channels to be

detected from phase differences between the clocks at the
50 respective channels reproduced by the plurality of clock
reproducing units and the reference clock generated by the
reference clock generating unit;

an information storage unit which stores the plurality of
pointer values successively detected ~~and corrected~~ by the pointer
55 value detecting unit in association with information for
indicating the plurality of pointer values in accordance with the
plurality of channels; and

a display unit which indicates, at the same time, the
plurality of pointer values for respectively evaluating the
60 transmission states of the plurality of channels which configure
the communication network by the SONET/SDH, corresponding to the
plurality of channels, based on the plurality of pointer values
and the information for indicating the plurality of pointer
values corresponding to the plurality of channels which have been
65 stored in association with one another in the information storage
unit.

16. (Original) The transmission state indicating apparatus
according to claim 15, further comprising:

a control unit which carries out processing for indicating
the plurality of pointer values by relative values with respect

5 to a pointer value of a reference channel to be a reference among
the plurality of channels on the display unit.

17. (Previously Presented) The transmission state
indicating apparatus according to claim 15, wherein the plurality
of pointer values include, as factors of the respective channels
to be objects for the delay absorption processings, values of AU
5 (Administrative Unit) pointers included in H1 bytes and H2 bytes
which have been defined to show head portions of the virtual
containers in case where the low capacity containers are
contained in a payload, at the 4th row of an SOH (Section
Overhead) frame in which the plurality of frames are frames of an
10 STM (Synchronous transfer mode) and are added to the payload of
the frame of the STM.

18. (Previously Presented) The transmission state
indicating apparatus according to claim 15, wherein the plurality
of pointer values include, as factors of the respective channels
to be objects for the delay absorption processings, a value of H4
5 byte which has been defined at the 6th row of a POH (Pass
Overhead) added to head portions of the respective virtual
containers in case where the plurality of frames are frames of an
STM (Synchronous transfer mode) and the virtual containers

included in the frames of the STM are a VC-3 format or a VC-4
10 format.

19. (Previously Presented) The transmission state
indicating apparatus according to claim 15, wherein the plurality
of pointer values include, as factors of the respective channels
to be objects for the delay absorption processings, values of AU
5 (Administrative Unit) pointers included in H1 bytes and H2 bytes
which have been defined to show head portions of the virtual
containers in case where the low capacity containers are
contained in a payload, at the 4th row of an SOH (Section
Overhead) frame in which the plurality of frames are frames of an
10 STM (Synchronous transfer mode) and are added to the payload of
the frame of the STM, and a value of H4 byte which has been
defined at the 6th row of a POH (Pass Overhead) added to the head
portions of the respective virtual containers in case where said
plurality of frames are frames of the STM (Synchronous transfer
15 mode) and the virtual containers included in the frames of the
STM are a VC-3 format or a VC-4 format.

20. (Currently Amended) The transmission state indicating
apparatus according to claim 15, further comprising:

a frame converting unit which converts the multiplexed frame
~~on which mapping has been carried out~~ assembled by the frame

5 assembling unit into a concatenation mapping frame according to rules of concatenation mapping; and

an index value detecting unit which detects a plurality of index values included in the concatenation mapping frame converted according to the rules of the concatenation mapping by the frame converting unit.